Contributions from the Herbarium of the Geological Survey of Canada.

(By Permission of the Director.)

By James M. Macoun,
Curator of the Herbarium.

II.

"*Reprinted from the Canadian Record of Science, April*, 1894."

Contributions to Canadian Botany.

By Jas. M. Macoun.

"*Reprinted from the Canadian Record of Science, April*, 1894."

Contributions to Canadian Botany.

By Jas. M. Macoun.

II.

Thalictrum Fendleri, Engelm.

Kicking Horse Lake, Rocky Mts. 1890. (*Jas. M. Macoun.*) Only Canadian station.

Thalictrum occidentale, Gray.

The western limit of this species is placed by Prof. Macoun (Cat. Can. Plants p. 479) in the Selkirk Mts., B.C. Recent collections and a re-examination of our specimens have greatly extended its range.[1] Mountains near Kootanie Lake, B.C.; Sproat, B.C.; Mountains near Griffin Lake, B.C.; Nanaimo, Vancouver Island. (*John Macoun.*) Mountains near Spence's Bridge, B.C. (*Jas. M. Macoun.*) Dean or Salmon River, B.C. (*Dr. G. M. Dawson.*)

Thalictrum polygamum, Muhl.

T. Cornuti, Linn.

[1] The Geographical limits given in these papers refer to Canada only.

This species is confined to Eastern Canada and does not extend across the continent as stated in Macoun's Cat. Can. Plants, p. 15. Our most western specimens are from Flat Rock Portage, Lake Nipigon, Ont.

THALICTRUM PURPURASCENS, Linn.

Long Lake, Assiniboia; Warm Springs, Kootanie Lake, B.C. (*John Macoun.*) Not before recorded west of Ontario. References under var. *ceriferum*, Macoun's Cat. Can. Plants, p. 479 go here.

THALICTRUM VENULOSUM, Trelease.

Additional stations for this rare species are Manitoba House, Lake Manitoba; Kicking Horse Lake, Rocky Mts. (*John Macoun*).

THALICTRUM DIOICUM × PURPURASCENS.

Specimens from Eel River, Restigouche, N.B., (*R. Chalmers.*) with leaves glandular and fruit intermediate have been referred here by Dr. Trelease.

Note—All the specimens of *Thalictrum* referred to above have been examined by Dr. Wm. Trelease and our determinations confirmed or corrected by him.

ANEMONE DELTOIDEA, Dougl.

Specimens collected in the Coast Range by Dr. G. M. Dawson, were referred here by Prof. Macoun, (Cat. Can. Plants p. 13.) A recent examination of these specimens shews them to be *A. Richardsoni*. *A. deltoidea* has not been found in Canada.

ANEMONE HEPATICA, L.

A few leaves collected by Dr. Robt. Bell on the Upper Savage Islands, Hudson Straits, (Macoun, Cat. Can. Plants, p. 478), prove to be the root-leaves of *Saxifraga cernua* and not *A. Hepatica*.

ANEMONE LYALLII, Britton, Annals of N. Y. Academy of Sciences, Vol. VI. p. 227.

A. nemorosa, Linn., var. (?), Macoun, Cat. Can, Plants, Vol. I, p. 478.

A. Oregana, Macoun, Cat. Can. Plants, Vol. II, p. 295.

Slender, erect, nearly glabrous throughout, 10-40 cm. high, from a short horizontal root-stock. Radical leaves not seen: leaves of the involucre on very slender petioles 1.5-3 cm. long., 3-divided, the divisions sessile, ovate, or the terminal ones sometimes nearly orbicular, dentate-crenate, or sometimes incised, acute, or obtuse, very thin, more or less ciliate along the margins; flowers solitary white, about 1 cm. broad, its peduncle slightly exceeding the petiols of the involucral leaves, sepals about 5, oval-oblong, obtuse; young achenia quite densely strigose-pubescent

Dean or Salmon River, B.C., (*Dawson*). Near Victoria, V.I., (*Fletcher*), Goldstream, V.I., and Burnside Road near Victoria. V.I., (*Macoun*. Herb. Nos. 912, 913).[1]

ANEMONE QUINQUEFOLIA, L.

A. nemorosa, Amer. Authors.

"Readily distinguishable from the European *A. nemorosa* by its slender habit, slender petioles, less lobed divisions of the involucral leaves, paler green of the foliage and smaller flowers." (Dr. N. L. Britton.)

The western limit of this species as shown by our herbarium specimens is Wingham, Ont.

Note. See Revision of the genus *Anemone* by Dr. N. L. Britton in Annals of the New York Academy of Sciences, Vol. VI. pp. 215-238.

AQUILEGIA CHRYSANTHA, Gray.

On the portage between Hope and the head of the Similkemeen River, B.C., (*A. J. Hill.*), New to Canada.

ARABIS MACOUNII, Watson, Proc. Am. Acad. of Arts and Sciences, p. 124.

Biennial, branched from the base, slender, pubescent

[1] Whenever herbarium numbers are given, they are the numbers under which specimens have been distributed from the herbarium of the Geological Survey of Canada.

below with mostly stellate spreading hairs, glabrous above or but sparingly puberulent, a foot high; leaves small and narrow, ½ inch long or less, the lower very rarely few-toothed, the cauline sagittate at base; flowers very small, pale rose-colour, 2 lines long; pods very narrow, 1 to 1½ inches long and about ½ line broad, glabrous, slightly curved, mostly divaricate on very slender pedicels 2 to 4 lines long, acute, the stigma nearly sessile; seeds (immature) approximately 1 rowed, apparently wingless; near *A. hirsuta.*

Gravelly banks, Revelstoke, B.C., May 13th, 1890. (*John Macoun.*)

TRIFOLIUM PROCUMBENS, Linn.

An erect form of this plant was found by Prof. Macoun in 1893, growing in fields at Comox, Vancouver Island. Not recorded before from western Canada, though the var. *minus* is common on Vancouver Island.

TRIFOLIUM INVOLUCRATUM, Willd.

Collected at Revelstoke, B.C. in 1890 by Prof. Macoun. Abundant on Vancouver Island, but not before collected in the interior of British Columbia.

TRIFOLIUM MICROCEPHALUM, Pursh.

Collected at Revelstoke and Sproat on the Columbia River, B.C. in 1890 by Prof. Macoun. Common on Vancouver Island, but not before recorded from interior of British Columbia.

LOTUS CORNICULATUS, Linn.

Recorded from New Brunswick. Collected in 1890 at Victoria, Vancouver Island, by Rev. Edw. L. Greene.

ASTRALAGUS ROBBINSII, Gr. var. OCCIDENTALIS, Wat.

Not before separated in Canada from *A. alpinus*, the western form of which it somewhat resembles. Bow River at Morley, Alberta; near the Glacier at Lake Louise, Rocky Mts.; Deer Park, Columbia River, B.C. (*John Macoun.*) Gui-

chon Creek, B.C. (*Dr. G. M. Dawson.*) All the above specimens were found growing on gravelly shores or banks.

FRAGARIA CANADENSIS, Michx.

This plant has been separated from *F. Virginiana* by Dr. N. L. Britton. (Bull. Torr. Bot. Club, Vol. XIX., p. 222.) At the time Dr. Britton's note was written our herbarium contained no specimens of this species. In 1892, however, it was collected by Miss E. Taylor at Fort Smith, on the Great Slave River, and in 1893 by Mr. Jas. W. Tyrrell on the banks of the Black River, east of Lake Athabasca. "The leaflets are much narrower, oblong or the middle one obovate and cuneate at the base, all obtuse rather sparingly and not deeply toothed." In Miss Taylor's specimens the largest leaflet is 20 lines long and but 7 lines broad at its widest part. The plants here referred to are very much slenderer than any of our specimens of *F. Virginiana*. The stations given for this species by Dr. Britton are Lake Mistassini, (*Michaux.*) Arctic America. (*Dr. Richardson.*) Elk River [Athabasca River] (*Kennicott.*)

EPILOBIUM, Linn.

In the last addendum to his catalogue of Canadian Plants (Vol. II., p. 323), Prof. Macoun wrote: "Many additional species and varieties of *Epilobium* have been added to our flora since the publication of Part III, but our whole series of this genus is now being examined by Prof. Trelease who is unable to report upon them in time to include them in this part." Since the above was written botanical explorations in the Rocky Mountains, British Columbia, and elsewhere have added greatly to our knowledge of this genus, and the revision here given covers all the specimens in our herbarium and gives the distribution of each species as we now understand it. All our specimens have been examined by Dr. Wm. Trelease, and references to many of them have been included in his revision of this genus. (See Second Annual Report, Missouri Botanic Gardens, pp. 69-116.)

(1.) E. SPICATUM, Lam.

Common from the Atlantic to the Pacific and north to the Arctic Circle. The most northern specimens in our herbarium are from the mouth of the Mackenzie River (*Miss E. Taylor.*) and from Lat. 60° 20, Long. 104° 30. (*Jas. W. Tyrrell.*)

Var. CANESCENS, Wood.

"An albino variety with more than usually canescent pods." Marmora Village, Hastings Co. and Owen Sound, Ont. (*John Macoun.*) Lake of the Woods, Ont. (*Burgess; Dawson.*) Norway House, Lake Winnipeg. (*Otto Klotz.*)

(2.) E. LATIFOLIUM, L.

Newfoundland, Labrador and the Gaspé Peninsula; Bow River, Rocky Mts., to the Pacific Coast and throughout Canada north of Lat. 53°. Most of the northern specimens in our herbarium are the broad-petaled variety *grandiflorum*, Britton. Specimens collected by Mr. Jas. W. Tyrrell in Lat. 64° Long. 101° were just coming into flower Aug. 25th, 1893. Albinos with very large cream-coloured flowers have been collected on both sides of Hudson Bay by Mr. Jas. M. Macoun.

(3.) E. HIRSUTUM, L.

Naturalized at Niagara Falls, Ont. (*R. Cameron.*) Introduced in garden seed.

(4.) E. LUTEUM, Pursh.

Abundant by rivulets and on damp grassy slopes in the Selkirk Mts., B.C., between Beaver Creek and the Glacier House, but not known to occur elsewhere in Canada. The petals are bright yellow a little lighter than those of *Œnothera biennis.*

(5.) E. PANICULATUM, Nutt.

Abundant at Colpoy's Bay, Georgian Bay, Lake Huron. (*John Macoun.*), but not found in any other part of Eastern Canada. Rare in the prairie region, but common in British Columbia and on Vancouver Island.

(6.) E. MINUTUM, Lindl.

From several localities in British Columbia and common on Vancouver Island. The form named *adscendens* by Suksdorf, was collected on Mt. Benson, Van. Island, by Prof. Macoun in 1893.

Var. FOLIOSUM, Torr & Gray.

Sproat, Columbia River, B.C., (*John Macoun*) and Yale Mt., B.C., (*Fletcher.*) Common on Vancouver Island.

(7.) E. STRICTUM, Muhl.

E. molle, Torr. of Macoun Cat. of Canadian Plants, p. 171 in part and p. 530.

Specimens in our herbarium are from East Pt., P.E.I., and Belleville, Ont. (*John Macoun*); Cartwright, Ont. (*W. Scott.*)

(8.) E. LINEARE, Muhl.

Common from Prince Edward Island west to Beaver Creek, Selkirk Mts., B.C.

(9.) E. PALUSTRE, L.

Common from the Atlantic to the Rocky Mts. No specimens in our herbarium from British Columbia, but found north of that province by Dr. G. M. Dawson on the Lewis River in Lat. 62°.

(10.) E. PALUSTRE × LINEARE. (*E. pseudolineare*, Hausskn.)

Specimens collected by Prof. Macoun at Ellis Bay, Anticosti, have been referred here by Dr. Trelease.

(11.) E. DAVURICUM, Fisch.

"Habit of *E. palustre;* stems terete or with occasional low decurrent lines; seeds fusiform, prominently beaked."

A span or two high mostly simple, the very slender stem sparingly incurved-pubescent, otherwise glabrous; roots densely fascicled; leaves less than 15 mm. long, somewhat crowded at base, alternate and remote above, linear or oblong, obtuse, remotely denticulate, sessile 1-nerved; flowers pale not very numerous, nodding; capsules erect

40 mm., or long slender peduncles; seeds, ·4 × 1·5 mm.; coma white.

In bogs, Beaver Creek, Selkirk Mts., B.C., Aug. 14th, 1885. (*John Macoun.*) In one of these specimens "the beak of the seed is very narrow and 3 mm. long."

(12.) E. FRANCISCANUM, Barbey.

Of many of our specimens examined by Dr. Trelease, but one collected at Qualicum, Vancouver Island, has been definitely referred to this species. Of other specimens examined by him he says: "Specimens collected on Vancouver Island and in British Columbia are doubtfully referred here, though they may belong to *adenocaulon*. The smaller, more closely crisp-hairy form approaches the next species. [*E. Watsoni.*] A curious simple plant with large glossy thin leaves, scarcely to be referred elsewhere occurs from Queen Charlotte Islands, B.C. (*Dawson*, July 10th, 1878.)"

Specimens collected by Prof. Macoun on Vancouver Island in 1893 are placed here, though "too near *E. adenocaulon var. occidentale.*" The specimens now referred to this species were formerly included under *E. coloratum.*

(13.) E. COLORATUM, Muhl.

Represented in our herbarium by but one specimen from Casselman, Ont. All the eastern specimens placed under *E. coloratum*, and most of the western placed under *E. coloratum* and *E. tetragonum* in Prof. Macoun's Catalogue of Canadian Plants, (pp. 169-170) have been referred to *E. adenocaulon* by Dr. Trelease.

Specimens from Salt Lake, Anticosti; Little Flat, Rock Portage, Nipigon River, Ont., and Little Slave Lake, N.W.T., are probably *coloratum* × *adenocaulon.*

(14.) E. ADENOCAULON, Hausskn.

Common from the Atlantic to British Columbia. Dr. Trelease considers that a very small crisp-pubescent form (1½ to 3 inches in height), collected by Prof. Macoun at Brackley Pt., P.E.I., may be *E. ciliatum*, Raf.

Var. OCCIDENTALE, Trelease.

Lake Okanagan and Burrard Inlet, B.C., and common on Vancouver Island. "Sometimes comes too near *E. Franciscanum*, but differs in its usually smaller flowers less corymbosely clustered and more acute at base, and in its shorter glandular pubescence."

(15.) E. GLANDULOSUM, Lehm.

In damp places at an altitude of 5,000 feet at Warm Springs, Kootanie Lake, B.C. (*John Macoun.*)

(16.) E. BREVISTYLUM, Barbey.

Specimens from mountains south of Tulameen River B.C. (*Dawson*), have been doubtfully referred here by Dr. Trelease.

(17.) E. HALLEANUM, Hausskn.

Collected by Prof. Macoun in 1887 on Cedar Hill, Vancouver Island, and in 1893 at Esquimault, V. I.

(18.) E. DRUMMONDII, Hausskn.

Young specimens from Stewart's Lake, B.C., (*Macoun*) with leaves in whorls of 3, have been doubtfully referred here by Dr. Trelease.

(19.) E. LEPTOCARPUM, Hausskn.

A span or less high, glabrous except for some incurved pubescence on the stem; leaves less than 20 mm. long, broadly lanceolate, sparingly low-toothed, tapering from near the middle to the obtuse or subacute apex and winged petiole; flowers abundant for the size of the plant; calyx-tube narrow; petals about 3 mm. long, rosy; capsules 20 mm., on very slender peduncles of nearly equal length; seeds nearly ellipsoidal, shortly hyaline-beaked, ·25 × ·75 mm.; coma at length cinnamon-colored.

Var. MACOUNII, Trelease.

Less branched, crisp-pubescent in lines, the same pubescence more or less abundant also on the flowers and capsules; leaves more ovate; seeds 1 mm. long; coma paler.

New variety first collected in 1878 near Lake Athabasca by Prof. Macoun, for whom it is named, and again by him at the head of Lake Louise, Rocky Mts., in 1891.

(20.) E. HORNEMANNI, Reichenb.

Nearly all the references under *E. origanifolium*, Lam., Macoun's Catalogue of Canadian Plants, p. 169, belong here.

In one or other of its forms from Labrador to Vancouver Island.

(21.) E. ALPINUM, L.

From Kicking Horse Lake to Vancouver Island. Generally found with the preceding species which it greatly resembles. *E. Hornemanni* is "somewhat crisp-hairy in the inflorescence and along the decurrent lines or slightly glandular at top, otherwise glabrate"; in *E. alpinum* the inflorescence and decurrent lines are more nearly glabrous. In the former species the seeds are "rather abruptly short-appendaged, from nearly smooth to very rough;" in the latter they are "smooth gradually alternated at apex with very evident beak."

(22.) E. OREGONENSE, Hausskn.

Borders of rivulets, Swamp River, B.C. (*Macoun.*) Only Canadian station.

(23.) E. ANAGALLIDIFOLIUM, Lam.

Specimens in our herbarium are from Cape Chudleigh, Hudson Strait. (*Dr. Bell.*) Rocky Mts. (*Drummond.*) Kicking Horse Lake, Rocky Mts., and Mt. Benson, Vancouver Island. (*Macoun.*)

(24.) E. CLAVATUM, Trelease.

A span high, mostly densely cæspitose, the slender stems ascending, glabrate to sparingly glandular throughout; leaves 15 to 20 mm. long, divergent, broadly ovate, very obtuse, subentire to remotely serrulate, mostly rounded to evident petioles, firm, drying brownish; flowers rather few, suberect, petals rose-colored, about 5 mm. long; capsules 25 mm., subclavate arcuately divergent, the lowest often not

reaching the apex of the stem, their slender peduncles equalling the subtending leaves; seeds fusiform, tapering into a pale beak, nearly smooth to coarsely papillate, ·4 to ·6 × 1·5 to 2 mm.; coma barely dingy.

First collected in Canada by Jas. M. Macoun in 1890, at an altitude of 7,500 feet on mountains near Kicking Horse Lake, Rocky Mts. In 1891 by Prof. Macoun on several mountains near Banff and Lake Louise, Rocky Mts.

ANGELICA LYALLII, Wat.

Specimens collected by Dr. Geo. M. Dawson on the summit of the South Kootanie Pass in 1891, were doubtfully referred here by Prof. Macoun (Cat. Can. Plants, Vol. I., p. 535.) These specimens have since been examined by Coulter and Rose, who confirm his determination. This species has since been found at Sproat, Columbia River, B.C., 1890, (*John Macoun*) and at Chaperon Lake, B.C., (*Jas. McEvoy.*)

ECHIUM VULGARE, Linn.

Though well naturalized and spreading in Canada, east of the great Lakes, of very local occurrence in the west. Our western specimens are from Wabigon Tank, on the C. P. Railway, east of Lake of the Woods, (*Wm. McInnes*) and Cariboo, B.C. (*John Macoun.*)

MENTHA CANADENSIS, L.

Colquitz River, near Victoria, V. I., and Sooke, V. I., 1893. (*John Macoun*, Herb. Nos. 1054, 1055.) Not before recorded from Vancouver Island.

MENTHA CANADENSIS, L. var. GLABRATA, Benth.

Fort Simpson, Mackenzie River. (*Miss E. Taylor.*) Sproat, B.C.; Kamloops, B.C.; Sproat Lake, Vancouver Island. (*John Macoun.*) Not before recorded west of Rocky Mountains.

NEPETA CATARIA, L.

Beacon Hill, near Victoria, Vancouver Island, 1893. (*John Macoun*, Herb. No. 977.) Not before recorded west of Ontario.

STACHYS CILIATA, Dougl. var. PUBENS, Gray.

New Westminster, B.C., 1892. (*Law.*) Fishery Bay. Nasse River, B.C. (*Jas. McEvoy*, Herb. No. 1096.) Our only other specimen is from Queen Charlotte Islands.

MENTHA VIRIDIS, L.

Growing in the streets of Victoria, Vancouver Island. 1893. Naturalized. (*John Macoun*, Herb. No. 1052.)

ASARUM CAUDATUM, Lindl.

Common at Revelstoke, B.C. (*John Macoun.*) Eastern limit in Canada.

EPIPACTIS HELLEBORINE, Crantz.

First found in Canada in 1890 at Lambton Mills, Humber River, Ont., by W. & C. White, and more recently (1892) on Mount Royal, Montreal, Que., by N. D. Keith.

The only stations given for this species in the last edition of Gray's Manual are Syracuse and Buffalo, N.Y.

EPIPACTIS GIGANTEA, Dougl.

Collected by Dr. G. M. Dawson in 1877 at Osoyoos Lake, B.C., but not again until 1890, when it was found by Prof. Macoun at Lower Arrow Lake, Columbia River, and Hot Springs, Kootanie Lake, B.C.

ALLIUM NEVII, Watson.

Found growing on gravelly banks at Botanie near Spence's Bridge, B.C., by Jas. McEvoy. Found on Vancouver Island, but not before on the mainland.

JUNCUS GERARDI, Lois.

This rush, though common on the Atlantic Coast, had not been found on the Pacific Coast until it was discovered in 1887 by Prof Macoun near Victoria, Vancouver Island. It was again collected by him at Nanaimo, V. I. in 1893. As in the east it was found growing in salt marshes and is without doubt indigenous.

POTAMOGETON NATANS, Linn.

Enderby, B.C., and Shuswap Lake, B.C. (*Jas. M. Macoun.*) Griffin Lake, B.C., and Revelstoke, B.C. (*John Macoun.*) Not before recorded from British Columbia.

POTAMOGETON PAUCIFLORUS, Pursh.

Revelstoke, B.C., 1890. (*John Macoun.*) Not before recorded from British Columbia.

BOTRYCHIUM LANCEOLATUM, Angst.

Near Niagara Falls, Ont. (*R. Cameron.*) Not before found in Ontario.